



BME Seminar Series 07

8 August 2023 (Tuesday), 4:00 p.m.

LT-8 Lecture Theatre, 4/F, YEUNG

Prof. Huanyu CHENG

The Pennsylvania State University, USA

<https://www.cityu.edu.hk/bme/>

(organized by Prof. Xinge YU)

Standalone stretchable device platform for biomedicine

Abstract

Conventional electronics today form on the planar surfaces of brittle wafer substrates and are not compatible with 3D deformable surfaces. As a result, stretchable electronic devices have been developed for continuous health monitoring. Practical applications of the next-generation stretchable electronics hinge on the integration of stretchable sustained power supplies with highly sensitive on-skin sensors and wireless transmission modules. This talk presents the challenges, design strategies, and novel fabrication processes behind a potential standalone stretchable device platform that (a) integrates with 3D curvilinear dynamically changing surfaces, and (b) dissolves completely after its effective operation. The resulting device platform creates application opportunities in fundamental biomedical research, disease diagnostic confirmation, healthy aging, human-machine interface, and smart internet of things.

Biosketch

Prof. Huanyu "Larry" Cheng is the James L. Henderson, Jr. Memorial Associate Professor of Engineering Science and Mechanics at Penn State University. His research group focuses on the design, fabrication, and application of the standalone stretchable device platform. Larry has co-authored more than 140 publications with total citations >18,000 according to Google Scholar.

His work has been recognized through the reception of numerous awards, including the 2023 Emerging Investigator for Nanoscale, Humboldt Research Fellowship for Experienced Researchers, 2022 Minerals, Metals & Materials Society (TMS) Functional Materials Division (FMD) Young Leaders Professional Development Award, 2021 NIH Trailblazer Award, MIT Technology Review Innovators Under 35 (TR35 China) in 2021, 2021 Scialog Fellow in Advancing BiImaging, 2021 Frontiers of Materials Award from TMS, Forbes 30 Under 30 in 2017, among others. He also serves as the associate editor for 7 journals and reviewer for > 250 journals.

